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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,528	10/18/2001	Andrew William Mackie	004968-056	7291
2101	7590	06/23/2006	EXAMINER	
BROMBERG & SUNSTEIN LLP 125 SUMMER STREET BOSTON, MA 02110-1618			JACKSON, JAKIEDA R	
			ART UNIT	PAPER NUMBER
			2626	

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/042,528	Applicant(s) MACKIE, ANDREW WILLIAM	
	Examiner Jakieda R. Jackson	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 3-9 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. In response to the Office Action mailed December 6, 2005, applicant submitted an amendment filed on April 7, 2006, in which the applicant traversed and requested reconsideration with respect to **claim 1** and added claim 10.

Response to Arguments

2. Applicant argues regarding claim 1 that Matsubayashi does not teach segmenting compound words in order to produce a segmented string that is interpretable as a compound word. However, Matsubayashi teaches a word separator (column 24, lines 19-27 with column 16, line 65 – column 17, line 3 and column 18, lines 42-47). In this case, for example character strings can be searched and thus an accurate relevant document searching can be realized. However, Matsubashi does not specifically teach wherein a linkable component is identified by locating the component in a lexicon. However, applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant also argues that Iizuka fails to disclose "identifying a plurality of linkable components by traversal of substrings of the natural-language input delimited by the set of probabilistic breakpoints, wherein a linkable component is identified by locating the component in a lexicon as amended. Applicant's arguments have been fully considered and are persuasive. However, upon further consideration, a new ground(s) of rejection is made in view of Van Aelten et al.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-2** are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsubayashi et al. (USPN 6,473,754), hereinafter referenced as Matsubayashi in view of Van Aelten et al. (USPN 6,349,282), hereinafter referenced as Van Aelten.

Regarding **claim 1**, Matsubayashi discloses a method for segmenting compound words in an unrestricted natural-language input, the method comprising:

receiving a natural-language input consisting of a plurality of characters (column 16, lines 11-18);

constructing a set of probabilistic breakpoints in the natural-language input based on probabilistic analysis (column 15, lines 47-56 with column 20, lines 40-48);

identifying a plurality of linkable components by traversal of substrings of the natural-language input delimited by the set probabilistic breakpoints (column 18, line 64 – column 19, line 6 and column 24, lines 19-24); and

returning a segmented string consisting of a plurality of linkable components spanning the natural-language input, wherein the segmented string is interpretable as a compound word (column 16, line 65 – column 17, line 3 with separation of words;

column 18, lines 42-47 and column 24, lines 19-67), but does not specifically teach wherein a linkable component is identified by locating the component in a lexicon.

Van Aelten teaches compound words in speech recognition systems wherein a linkable component is identified by locating the component in a lexicon (abstract with column 5, line 52 – column 6, line 3), to avoid an explosion of the recognition vocabulary.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsubayashi's method wherein a linkable component is identified by locating the component in a lexicon, as taught by Van Aelten, to provide a continuous speech recognition system for handling compound words present in the recognition result. This avoids an explosion of the recognition vocabulary by incorporating into the recognition vocabulary the constituent components of compounds rather than the compounds themselves (column 5, lines 25-31).

Regarding **claim 2**, Matsubayashi discloses a method further including the step of analyzing a chart of the linkable components in the case that the segmented string cannot be constructed and returning an unsegmented string interpretable as a partial analysis of a compound word (column 21, lines 24-44).

5. **Claims 1 and 10** are *alternately* rejected under 35 U.S.C. 103(a) as being unpatentable over lizuka (USPN 20010009009) in view of Van Aelten.

Regarding **claim 1**, lizuka discloses a method for segmenting compound words in an unrestricted natural-language input, the method comprising:

receiving a natural-language input consisting of a plurality of characters (inputs; test; column 5, paragraph 0086);

constructing a set of probabilistic breakpoints (divides into words) in the natural-language input based on probabilistic analysis (probability; column 5, paragraph 0086);

identifying a plurality of linkable (reference to) components by traversal of substrings of the natural-language input delimited by the set probabilistic breakpoints (column 5, paragraph 0086); and

returning a segmented string consisting of a plurality of linkable components spanning the natural-language input, wherein the segmented string is interpretable as a compound word (column 5, paragraph 0086 with column 16, paragraph 0269), but does not specifically teach wherein a linkable component is identified by locating the component in a lexicon.

Van Aelten teaches compound words in speech recognition systems wherein a linkable component is identified by locating the component in a lexicon (abstract with column 5, line 52 – column 6, line 3), to avoid an explosion of the recognition vocabulary.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Matsubayashi's method wherein a linkable component is identified by locating the component in a lexicon, as taught by Van Aelten, to provide a continuous speech recognition system for handling compound words present in the recognition result. This avoids an explosion of the recognition vocabulary by incorporating into the recognition vocabulary the constituent components of compounds rather than the compounds themselves (column 5, lines 25-31).

Regarding **claim 10**, Iizuka discloses the method wherein the traversal of substrings is performed in an order determined by the probabilities obtained in the probabilistic breakpoint analysis (wherein each sequence of n characters is [aired with probabilities; column 10, paragraph 0170 with 0162 and column 8, paragraph 0144).

Allowable Subject Matter

6. **Claims 3-9** are allowed.

The following is a statement of reasons for allowance:

As for independent claim 3, it recites an apparatus for segmenting compound words in a natural-language input. Prior art such as Franz show a similar configuration but fails to teach the recited configuration wherein a probabilistic breakpoint analyzer is coupled to the startpoint probability matrix, the endpoint probability matrix and the natural-language input, the probabilistic breakpoint analyzer being operative to generate a breakpoint-annotated input from the natural-language input.

Dependent claims 4-9 are allowed because they further limit their parent claims.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R. Jackson whose telephone number is 571.272.7619. The examiner can normally be reached on Monday through Friday from 7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571.272.7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRJ
June 14, 2006



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